SS 201 b

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- Purpose: In social science, researchers use mathematical models to analyze agents' choices. In this course, I will introduce standard models frequently used in social science. The models vary depending on the choice environment of the agents.

  For each model, I will explain when and why one can use the model. In particular, I will provide necessary and sufficient conditions (i.e..axioms) under which one can use the model. I will teach proofs.

  Some of the axioms have been tested in experiments. I will also mention such empirical findings.

- Grading:
  - Participation and Presentation (20%)
  - Midterm Exam (40%)
  - Final Exam (40%)

- Class Schedule
  - Binary relation and its properties.
  - Representation of weak order
    - Finite case
    - Countable case
    - Uncountable case
  - Mixture space and Hersten Milnor's theorem
  - von Neumann-Morgenstern objective expected utility theory
    - I do not talk much about risk aversion in my class based on the coordination with the instructor of SS 205a. You will learn risk aversion in SS 205a. I also recommend for you to read chapter 6 of Mas-Colell, Whinston, and Green. "*Microeconomic theory*". Oxford University Press.

  - Allais paradox
  - Anscombe-Aumann subjective expected utility theory
  - Choice under ambiguity
    * Ellsberg paradox
    * Gilboa Schmeidler's maxmin subjective expected utility theory
  - Random choice
    * Random utility model
    * Logit model
  - Revealed preference
  - Intertemporal preference

- Text Books:
  - I will distribute a lecture note. The lecture note is based on the following two books:
    * David Kreps, "*Notes on the Theory of Choice*". Westview Press.
    * Peter Fishburn, "*Utility Theory for Decision Making*" out of print, the pdf is available at
      http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=AD0708563
  - As for von Neumann-Morgenstern objective expected utility theory, I recommend
    * Chapter 6 of Mas-Colell, Whinston, and Green. "*Microeconomic theory*". Oxford University Press.
  - As for random utility and revealed preference, I recommend
    * Chris Chambers and Federico Echenique "*Revealed Preference Theory*". Cambridge. Oxford University Press

- Participation:
  - At the beginning of each class, I will check your attendance.
  - During the quarter, you need to answer my questions in class at least 20 times.

- Homework:
  - In most of your homeworks, you need to provide mathematical proofs.
  - The proofs must be self-contained and do not have any gaps.
  - Your homeworks must be written by LATEX. I will not accept handwritten homeworks.

- Office Hours: Any time after the class or by appointment.